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ENTOMOLOGICAL NEWS

VOL. LXIII NOVEMBER, 1952 No. 9

A New Subspecies of Erebia epipsodea Butler (Lepidoptera: Satyridae)

By PAUL R. EHRLICH, Maplewood, New Jersey

In the fall of 1951, Mr. P. S. Remington of St. Louis, Mo., sent the author a short series of *Erebia epipsodea* collected by him during the preceding summer along the Alaska Highway in northern British Columbia and southern Yukon Territory. The single pair of specimens from the Yukon were obviously atypical and were labeled by Mr. Remington *"Erebia epipsodea?."* Further investigation has shown that this pair was representative of a population deserving a subspecific name. Therefore I propose:

Erebia epipsodea ssp. **remingtoni** nov.

Erebia epipsodea, Gibson, 1920, Report of the Canadian Arctic Expedition 1913–18, vol. 3, pt. I, p. 18i.

Erebia epipsodea, Holland, 1931, The butterfly book, revised ed., p. 204, pl. 61, figs. 24, 27.

Erebia epipsodea, McDunnough, 1937, Can. Ent. 69: 18.

FACIES

Both sexes may be distinguished from *epipsodea epipsodea* by the general reduction in number and size of the ocelli on both surfaces. This is most easily observed and analyzed on the underside of the male secondaries, which in *epipsodea epipsodea* usually has three well defined ocelli. In the 99 males from Alaska, the Yukon, and extreme northwestern British Columbia which are included in the type series of *remingtoni,* 48% had the underside of the secondaries immaculate, 45%

had the ocelli greatly reduced in size or number, and only 3% had even one ocellus which was pupilled with white. On the other hand, 435 male *epipsodea* from below 55° N. latitude showed only 4% immaculate, 34% reduced, and 52% with at least one pupilled ocellus. It has been impossible with the material on hand at present to determine whether these characters fall into a north-south cline. In the author's collection there are two male *epipsodea* from Upper Peace River District, and ten males from Mile 146–150, Alaska Highway, both localities being in northeastern British Columbia. These specimens do not differ appreciably from material from more southern localities. It should be stressed that in no southern population was any indication seen of the degree of immaculateness found in *remingtoni*.

No attempt has been made to work with the ground color of the specimens, as this varies greatly with the age of the specimen and with the time elapsed between its emergence and its capture.

The underside of the male holotype of *remingtoni* is illustrated in color on plate 61, fig. 27, of Holland (1931). The figure shows very clearly the characters discussed. The male type of *epipsodea,* of which the author has photographs, is larger than any *remingtoni* examined, and is as well marked on the upperside as the average *remingtoni* female, having three distinct ocelli on each of the secondaries. On the underside of the secondaries there are three small but definite ocelli, the first one on the right secondary being pupilled with white. In the figure of *epipsodea* accompanying the original description a specimen is shown with two of three ocelli on the underside of the left secondary pupilled. This could be a mistake on the part of the artist, or a representation of the one other specimen on which the original description was based. Plate 61, fig. 25, of Holland shows the underside of a male *epipsodea* from Montana which is remarkably close to that of the type, differing mainly in that the type has both ocelli on the forewing clearly pupilled and is larger. On plate 24, fig. 262, of Wright (1905) is illustrated the upper surface of a male *epip-*

sodea which is also close to the type. The ocelli on the secondaries are not as heavily pupilled in the type as in the figure, and the type has a third ocellus on the primary which is unpupilled. Since the male type of *epipsodea* does not resemble any of the 99 male *remingtoni* examined it seems safe to assume that it did not come from a population of *remingtoni*.

Plate 61, fig. 24, of Holland shows the upper surface of the female allotype of *remingtoni,* and a quick comparison with fig. 26 on the same plate, which is a fairly typical female of *epipsodea,* will suffice to show the subspecific differences.

Other good photographs of *epipsodea* are figs. 1163, 1164, 1165, 1169 and 1170 on plate 83 of Warren (1936).

Genitalia

Male. 13 male paratypes of *remingtoni* and 47 males of *epipsodea* have been dissected. The first few dissections seemed to show constant differences between the two subspecies; however, these faded away into mere tendencies with dissection in series. The genitalia throughout the species proved to be very variable, particularly in the shape of the clasp, but also in the length and shape of the saccus and the shape of the anterior end of the aedeagus. Plate 38, figs. 357 and 358, and plate 104, fig. 1640 in Warren are photographs of the male genitalia. In the clasp of *remingtoni* there appears to be a tendency towards a sharp shoulder with an extension of the spines of the head basally over the shoulder. In *epipsodea* the slope of the shoulder is often somewhat gentler, with the spines more or less restricted to the ridge between the head and shoulder. These differences are not constant enough to be anything but a secondary aid in identification.

Female. 3 female paratypes of *remingtoni* and 6 females of *epipsodea* have been dissected. The female genitalia seem to vary little, and no hint of subspecific differences could be seen. A brief description of the female genitalia follows:

Bursa copulatrix membranous, approx. 2.3 mm. in length, 1 mm. wide at its widest, somewhat oval in outline, tapering into the ductus bursae. Bursa with two simple signa, approx.

.8 mm. by .1 mm., covered with numerous small spines and lying more or less parallel to the axis of the ductus bursae. Ductus bursae well sclerotized, approx. .9 mm. by .4 mm., slightly wider at the anterior end. Genital plate roughly wrinkled, especially around the roughly triangular ostium. Ovipositor lobes lunate, lightly sclerotized; apophyses of ovipositor approx. .5 mm. long, tapering to a point anteriorly.

Distribution

So far *remingtoni* has been seen from the extreme northwestern corner of British Columbia (Atlin), southeastern Yukon Territory, and along the Yukon River Valley from Dawson, Y. T., to Fort Yukon, Alaska, on the Arctic Circle. It probably occurs in suitable localities throughout the Yukon and Western Alaska south of the tree line.

Type Material

Holotype male, Dawson, Yukon Territory, June 11, 1916, J. A. Kusche; *allotype* female, Circle, Alaska, June 25, 1916, J. A. Kusche; both in the collection of the Carnegie Museum. There are 98 male and 21 female *paratypes* as follows: 3 males, Atlin, B. C., June 20, July 11, 12, 1930; 1 male, Mile 1120, Alaska Highway, Y. T., July 12, 1951, P. S. Remington (genitalic slide no. 34, P.R.E.); 1 female, Kluane Lake nr. Burwash Landing, Y. T., July 12, 1951, P. S. Remington (genitalic slide no. 89, P.R.E.); 1 male, Lower Klondike, Y. T., July 1, 1919, alt. 2,000′; 1 male, 1 female, Yukon Territory, Lat. 62°31′ to 63°06′ Long. 137°30′ to 139°30′, summer of 1916; 6 males, Dawson, Y. T., Treadgold; 6 males, 3 females, Dawson, Y. T., June 11–13, 1916, J. A. Kusche (male genitalic slide no. 37, P.R.E.); 2 males, 5 miles up Klondike River, Dawson, Y. T., June 15, 1916, J. A. Kusche (genitalic slide no. 67, P.R.E.); 9 males, 1 female, Dawson, Y. T., July, various dates, 1949, W. W. Judd; 19 males, 2 females, Dawson, Y. T., various altitudes between 1,100′ and 2,000′, June and July, various dates, 1949, P. F. Bruggemann; 10 males, 2 females, Head of Bonanza Cr., alt. 2,000′, Dawson, Y. T., June 16, 1916, J. A. Kusche (male genitalic slides nos. 43 and 46, P.R.E., female genitalic slide no. 90, P.R.E.); 12 males, 2 females, Moose Hide Canyon, alt. 1,500′, Dawson, Y. T., June 17, 1916, J. A. Kusche (male genitalic slides nos. 63

and 65, P.R.E.); 4 males, 4 females, 12-mile Camp, Dawson, Y. T., June 16, 1916, J. A. Kusche (male genitalic slides nos. 42 and 64, P.R.E.); 1 male, Mile 25 W. of Dawson, Y. T., alt. 3,500′, August 16, 1949, P. F. Bruggemann; 1 male, Mile 16 W. of Dawson, Y. T., alt. 3,600′, August 22, 1949, P. F. Bruggemann; 1 male, Mile 61 W. of Dawson, Y. T., alt. 4,000′, July 15, 1949, P. F. Bruggemann; 13 males, 4 females, Eagle, Alaska, June 27, 29, 1903, July 5, 1901, Reed Heilig, F. Perkins, and S. Hall Young (male genitalic slides nos. 38 and 44, P.R.E., female genitalic slide no. 88, P.R.E.); 7 males, 1 female, Circle, Alaska, June 25, 1916, J. A. Kusche (male genitalic slides nos. 36 and 62, P.R.E.); 1 male, 3 miles up Porcupine River, Fort Yukon, Alaska, July 29, 1916, J. A. Kusche.

Distribution of paratypes: 3 males are in the American Museum of Natural History; 38 males and 9 females are in the Carnegie Museum; 39 males and 4 females are in the Canadian National Collection; 1 male is in the United States National Museum, ex collection Carnegie Museum, ex collection P. R. Ehrlich; 1 pair is in the collection of P. S. Remington, ex collection Carnegie Museum, ex collection P. R. Ehrlich; 16 males and 7 females (15 males and 6 females, ex collection Carnegie Museum) are in the author's collection, some of which will be distributed.

Remarks

Erebia epipsodea Butler (1868, p. 80) was described from two specimens from the "Rocky Mountains." The type is in the British Museum. Unfortunately it has not yet been possible to fix a definite type locality; however, there is good reason to believe that the type was not taken within the range of the new subspecies; first because of the differences between the type of *epipsodea* and *remingtoni* as previously analyzed, and secondly because it seems unlikely that anyone would have been collecting in the area occupied by *remingtoni* around the middle of the last century. The type is similar to specimens of *epipsodea* which the author has seen from Montana, Idaho, Washington, Southern Alberta, and Southern British Columbia. There is also some historical evidence to indicate that

the type was taken in this area, possibly near what is now Banff, Alberta.

Erebia rhodia Edwards (1871, p. 273) was described from Colorado, and is at present considered a synonym of *epipsodea*. Should the type locality of *epipsodea* be definitely fixed somewhere within the area previously delineated, *rhodia* will be the name available for the Colorado race, should this prove worthy of distinction.

Erebia epipsodea? var. *brucei* Elwes (1889, p. 326), based on a specimen from high altitude in Colorado, appears to be only an individual variant, in spite of its treatment as a species by Holland (1931, p. 204, pl. 61, fig. 20).

Erebia sine-ocellata Skinner (1889, p. 239) was described as a variety of *epipsodea*, the type being taken at Fort Qu' Appelle, Saskatchewan. Plate 83, fig. 1171 in Warren shows a near typical specimen of this fairly common aberration.

Erebia epipsodea is an extremely variable species, flying throughout a tremendous geographic area, and having a vertical range of over 10,000'. It has a tendency to break up into local strains or micro-subspecies, and these minor variations have apparently formed the basis for the prevalent idea that the species is devoid of racial variation. In the author's opinion nothing could be further from the truth; he would not be surprised eventually to see several distinct subspecies recognized. The author hopes ultimately to publish a complete report on the distribution and subspeciation of this species, based on several thousand specimens; however, it was considered desirable to publish this preliminary work in order to validate manuscript paratypes which had been designated.

ACKNOWLEDGMENTS

The author wishes to thank Mr. Harry K. Clench of the Carnegie Museum, who lent him long series of *remingtoni* from their collection and generously allowed him to retain a portion of the paratypes which he designated. The author is also indebted to Dr. T. N. Freeman and Dr. E. G. Munroe of the Division of Systematic Entomology of the Canadian Department of Agriculture, who during his recent visit to Ot-

tawa, took time from their many duties to assist him in his work and to answer his many questions. The author is most grateful to Dr. F. H. Rindge and Dr. A. B. Klots of the American Museum for their help on several taxonomic problems and for reading this manuscript.

The author wishes especially to thank his friend Mr. P. S. Remington for his many favors. It is in his honor that the new subspecies is named.

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A New Limotettix from South Dakota (Homoptera: Cicadellidae)

By DOROTHY J. KNULL, The Ohio State University, Department of Zoology and Entomology.

Limotettix bisoni n. sp.

Allied to *L. striolus* (Fallén) but larger, more robust, vertex less produced, last ventral segment of ♀ more feebly excavated, and style in ♂ with apex produced.

♂.—Head slightly longer at middle than against eyes; with eyes wider than pronotum; pronotum more than twice median length of head, transversely striate on posterior half; elytra

smoky semihyaline, veins pale, black dorsum showing through them gives darkened aspect.

General color of body yellow, brighter on scutellum and head, and often orange-tinged on venter, marked with black as follows: two almost parallel narrow transverse bands on apex of head, joined by tenuous black streak at outer edge of each orange ocellus, enclose pale area twice width of either band; three spots above each antenna against eye, evenly spaced, six irregular black arcs on each side of front, and sides of clypeus and front narrowly margined. Dorsum dark, venter of abdomen with dark central area diminishing in size toward last ventral segment which has only median spot on both margins.

FIG. 1. Apex of style, greatly enlarged.

Valve short, broad, evenly produced from lateral angles; half as long at middle as preceding segment. Plates together as long as broad, three times as long as valve, with blunt tips, meeting in straight line from base; outer margins with abundant stout pale hairs. Styles distinct as illustrated.

♀.—Last ventral segment twice as long as preceding, evenly, arcuately excavated one-third its length, a patch of black the width of black ovipositor on segment above it, tip of ovipositor pale, about three rows of stout hairs on pygofer either side.

All specimens were collected by Dr. H. C. Severin in SOUTH DAKOTA. *Types* are deposited in the Collections of the Ohio State University and South Dakota State College. ♂ *holotype, allotype,* 1 ♂ and 13 ♀ *paratypes,* Buffalo, Sept. 10, 1948; 9 ♂, 10 ♀ *paratypes,* Florence, Sept. 7, 1948; 2 ♂, 1 ♀, Brookings, July 25, 1950, and 1 ♀, July 11, 1950.

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae) Part XIII

By CHARLES P. ALEXANDER, University of Massachusetts, Amherst, Massachusetts

The preceding part under this general title was published in ENTOMOLOGICAL NEWS 61: 29–35, 1950. In the present report I am describing a few Eriopterine species from Colorado, California, Oregon, British Columbia, and Alberta, collected by myself and by my good friend, Kenneth M. Fender, to whom I express my deep appreciation for invaluable cooperation in the past. The types of the novelties are preserved in my collection of these flies.

Neolimnophila brevissima new species

General coloration gray, the praescutum with two narrow intermediate brown stripes, the lateral pair not or scarcely indicated; wings subhyaline, the large oval stigma pale brown, conspicuous; cells *C* and *Sc* a trifle darkened; vein R_{3+4} unusually long, about twice as long as vein R_3 and nearly equal to vein R_4; *m–cu* from two-fifths to about one-half its length beyond the fork of *M*.

♀. Length about 8 mm.; wing 9 mm.

Rostrum gray; palpi black. Antennae black throughout, the basal three segments very sparsely pruinose. Head light gray, the posterior vertex very faintly tinged with brown.

Pronotum pruinose. Mesonotum grayish pruinose, the praescutum with two narrow intermediate brown stripes, the lateral pair not or barely indicated; tuberculate pits black, occupying the darkened stripes. Pleura gray, the dorsopleural region more buffy yellow. Halteres with stem whitened, the knob a trifle darkened. Legs with the coxae gray pruinose; trochanters obscure yellow; remainder of legs brownish black. Wings subhyaline, the large oval stigma pale brown, conspicuous,

much more so than in related species; a longitudinal dusky seam behind vein *Cu*, cells *C* and *Sc* a trifle more brownish yellow than the ground; veins brown, more yellowed in the prearcular field. Venation: Sc_2 at extreme tip of Sc_1; R_{2+3+4} strongly arcuated at origin; R_{3+4} unusually long, about twice R_3 alone and nearly as long as vein R_4; *m–cu* about two-fifths to one-half its length beyond the fork of *M*.

Abdomen uniformly dark brown. Ovipositor with cerci slender, only gently upcurved.

Habitat. COLORADO. *Holotype:* ♀, Rabbits Ears Pass, at Columbine Lodge, altitude 9,620 feet, August 23, 1946 (C. P. Alexander).

Although a single specimen is available I must regard this fly as being distinct from the other Nearctic species and subspecies of the genus. The unusually small cell R_3 is not approached by any of the numerous specimens of *Neolimnophila ultima* (Osten Sacken) that I have seen. In the eastern Palaearctic region, other species, as *N. perreducta* Alexander show this extreme reduction in the size of this cell but are otherwise quite distinct.

Erioptera (Gonomyodes) yohoensis new species

General coloration of thorax light to darker brown, head dark gray; wings subhyaline, unpatterned; Sc_1 long, nearly two-thirds *Rs;* cell R_3 very deep, R_2 subequal to or longer than R_{3+4}; *m–cu* at or near midlength of cell *1st* M_2; male hypopygium with the outer dististyle a straight black rod that terminates in two subequal acute spines; phallosome narrow, without distinct lateral shoulders.

♂. Length about 4.3–4.5 mm.; wing 5.2–5.5 mm.
♀. Length about 4.5–5 mm.; wing 5.3–5.5 mm.

Rostrum brown; palpi brownish black. Antennae black throughout; flagellar segments oval, the verticils exceeding the segments. Head dark gray.

Thorax varying from uniform light brown or yellowish brown to darker grayish brown, the praescutum still darker medially.

Halteres pale. Legs with the coxae ochreous; trochanters yellow; remainder of legs light brown, the outer tarsal segments blackened. Wings subhyaline, unpatterned; veins a little darker than the ground. Venation: Sc_1 ending beyond fork of *Rs*, Sc_2 about opposite midlength of that vein, Sc_1 thus very long, nearly two-thirds *Rs;* cell R_3 very deep, vein R_4 being only a little shorter than the outer section of M_{1+2}; vein R_2 subequal to or longer than R_{3+4}; *m–cu* at or near midlength of cell *1st* M_2.

Abdomen dark brown, the basal sternites obscure yellow; hypopygium yellow. Male hypopygium with the two outer dististyles subequal in length, the outermost distinctive in conformation, appearing as a stout black rod that terminates in two subequal acute spines; intermediate style a little dilated on outer half, the apex produced into a flange and extended into a beak, forming a more or less evident saucer-shaped depression at end. Phallosome narrow, without conspicuous lateral shoulders, setiferous.

Habitat. ALBERTA, BRITISH COLUMBIA. *Holotype:* ♂, Kicking Horse Pass, along the Kicking Horse River exactly at the border between Alberta and British Columbia, altitude 5,350 feet, July 18, 1949 (C. P. Alexander). *Allotopotype:* ♀, pinned with type. *Paratopotypes:* Numerous specimens of both sexes, some unmounted, July 14–August 2, 1949; *paratypes:* Several of both sexes, Mount Edith Cavell, Jasper National Park, Alberta, altitude 6,000 feet, July 22 and 25, August 5, 1949 (C. P. Alexander).

This unusually interesting fly is quite distinct from the other regional species, including *Erioptera* (*Gonomyodes*) *knowltonia* Alexander and *E.* (*G.*) *tacoma* Alexander, differing especially in the male hypopygium. The flies were very common at the Great Divide in Kicking Horse Pass, especially along the upper branch of the Kicking Horse River where it forms the Provincial boundary. Here they were swept from spruce, fir, birch and willow close to the stream. Later it was found at Mount Edith Cavell where it was associated with *E.* (*G.*) *tacoma.* The weather was constantly cold and rainy and the various crane-flies were swept from underneath the lower branches of evergreens

growing close to the glacial stream emanating from the Angel Glacier.

Erioptera (Hesperoconopa) pugilis new species

General coloration gray, the praescutum with a broad median darker brownish gray stripe; antennae relatively long, more than one-fourth the length of body; wings with a rather strong brownish tinge, stigma faintly indicated; no macrotrichia in cells, Sc_2 atrophied; male hypopygium with the lateral branch of the outer dististyle small; inner dististyle unusually stout, on its lower margin at near three-fourths the length with a conspicuous knob; inner gonapophysis dilated at tip into a weakly spatulate blade, the margin of which is microscopically serrulate; aedeagus short.

♂. Length about 4.5 mm.; wing 5 mm.; antenna about 1.4 mm.

♀. Length about 4.5–5 mm.; wing 5–5.5 mm.

Rostrum gray; palpi black. Antennae with scape and pedicel black, basal segments of flagellum brown, the outer ones more blackened; antennae relatively long, as shown by the measurements; flagellar segments subcylindrical to long-oval, with a dense white pubescence; verticils relatively inconspicuous, more evident on the proximal segments. Head gray.

Mesonotum gray, with darker markings, including a broad median brownish gray praescutal stripe; scutal lobes less evidently darkened. Pleura clear light gray. Halteres uniformly pale yellow. Legs with the coxae heavily gray pruinose; trochanters dark brown; remainder of legs chiefly dark brown, femoral bases restrictedly paler; tibiae, except for tips, somewhat paler. Wings with a rather strong brown tinge, prearcular field more yellowed, stigmal region faintly and restrictedly more darkened; veins brown, paler in the prearcular field. No macrotrichia in wing cells. Venation: Sc_2 atrophied; R_{2+3+4} a little less than twice R_{2+3}; *m–cu* at fork of *M*.

Abdomen, including hypopygium, brownish black. Male hy-

popygium with the mesal face of basistyle with unusually long and abundant setae. Outer dististyle with lateral branch small. Inner dististyle unusually stout, its outer surface with the usual erect to subretrorse setae; lower margin at near three-fourths the length with a conspicuous knob giving a sinuous appearance to the lower margin of the style. Inner gonapophysis dark colored, dilated at apex into a weak spatulate blade, the margin microscopically serrulate. Aedeagus short, the lateral flange extending to the tip or virtually so.

Habitat. COLORADO. *Holotype:* ♂, Gothic, Gunnison County, altitude 9,500 feet, July 6, 1934 (C. P. Alexander). *Allotopotype:* ♀. *Paratopotype:* 1 ♂, July 2, 1934.

Erioptera (*Hesperoconopa*) *pugilis* is most readily separated from the only similar regional species, *E.* (*H.*) *aperta* (Coquillett), by the structure of the male hypopygium, particularly the inner dististyle and gonapophyses.

(*To be continued*)

The Occurrence of Archilestes Grandis Rambur in Western North Carolina (Odonata)

By D. L. WRAY, Raleigh, N. C.

Last October among several collections of insects sent in to me for the State Insect Collection by my friend, a naturalist, Mr. James Hutchins, were a number of dragonflies. There were about a dozen large *Aeschna umbrosa,* among which I found one specimen of *Archilestes grandis* Rambur. These were collected on October 17, 1951, about a mile from Windom, a small hamlet in Yancey County which is situated on the western slope of the mountain range that includes Mt. Mitchell. The water drainage here is eventually into the Mississippi. The specimens were collected around a small marshy place. Mr. Hutchins collected again in that area several days later, but found only the *Aeschna* and no more specimens of *Archilestes.* This is the first record for our state and is an interesting extension of range southeastward.

House Centipede (Scutigera forceps (Raf.)) Biting a Human

By W. W. JUDD, Department of Zoology, University of Western Ontario, London, Ontario

On May 9, 1951, a man in London, Ontario, reported being bitten by a house centipede which had been crawling over his clothing and which he brushed off with his right hand. The bite caused a sharp stinging sensation. It was on the tip of the little finger of the right hand and was about the size of a pinhead. It bled slightly for a few minutes. The tip of the finger remained red for a few days but no swelling occurred. The centipede, when examined, proved to be full grown, the body being about an inch long.

Metcalfe and Flint (1951), referring to this centipede as *Scutigera cleoptrata* (L.), report that there are "a few cases on record where the centipede has inflicted a painful bite when handled" and Herms (1939) says that these animals are "able to pierce the skin with their poison claws and cause severe pain with some swelling at the site of the bite."

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Two Species of Great Basin Orthoptera New to Colorado

By GORDON ALEXANDER and HUGO G. RODECK, University of Colorado

For several years the University of Colorado Museum has been making a faunal survey of Dinosaur National Monument. Collections of Orthoptera were made in several parts of the Monument during the seasons of 1948, 1949, and 1951. Although the collections are not complete it seems desirable at this time to report the occurrence of *Pedioscirtetes nevadensis* Thomas (Acrididae) and *Capnobotes fuliginosus* (Thomas)

(Tettigoniidae) in Colorado. These species have not been previously recorded from the state, nor even within hundreds of miles of the collecting locality.

Dinosaur National Monument is in Colorado and Utah, surrounding the canyons of the Yampa and Green Rivers above and below the confluence of the former with the latter. Most of the Monument area is within Colorado. Collections have been made at various points in the area from the floor of the canyon, at an elevation of approximately 5,000 feet above sea level, to Round Top, the highest point on the south rim of the Yampa Canyon, at an altitude of 8,258 feet.

Sage brush desert invades the general area from the west, climbing up the gradual ascent of the Yampa Plateau from the south even to the edge of the high rim. Where conditions are favorable scattered stands of aspen interrupt the sage brush on the Plateau but sage brush is the dominant form of vegetation. At the edge of the canyon rim this comes into abrupt contact with Douglas fir and other members of a mesic plant community, this vegetation growing on the north-facing slope immediately below the canyon rim. Here we find Great Basin species of Orthoptera in contact with those typical of the montane zone of the Southern Rocky Mountains. Thus it is quite understandable that one of our new records is from Round Top, one of the highest points in the Monument. In spite of the elevation, Round Top is within the edge of the Great Basin Desert, which, according to Tinkham (1944), extends into northwestern and west central Colorado. The distribution of sage brush up to the canyon rim is therefore quite significant.

Three specimens of *Pedioscirtetes nevadensis* were collected, all at the edge of the sage brush area on Round Top. All are now in the University of Colorado Museum. Two of these are juvenile—a fifth instar female, July 18, 1951, and a fourth instar female, July 19, 1951, both collected by Gordon Alexander. An adult male was collected September 13, 1951 by Richard and Anne Bingham. Previous published records of this species, which appears to be nowhere common, are from northern Arizona, Nevada, and Idaho (Ball et al., 1942). Mr. James A. G. Rehn has kindly informed us by letter that he has

collected the species on the Paunsaugunt Plateau near Bryce Canyon, Utah. Its occurrence in northwestern Colorado, therefore, represents a considerable extension of its known range.

The occurrence of *Capnobotes fuliginosus* in northwestern Colorado is even more remarkable since it has previously been thought to occur no further north than in the southern portions of the Great Basin Desert. The nearest recorded locality is in southwestern Utah (Tinkham, 1948). While we may with more reason expect to find *Capnobotes occidentalis* (Thomas) in Colorado the latter has not yet been reported. The specimens we are recording are typical *fuliginosus,* both in size and color. When *occidentalis* is taken in Colorado it will probably be found in the piñon-juniper region of the southeastern or southwestern part of the state.

The specimens of *Capnobotes fuliginosus* collected in Dinosaur National Monument are three adults, two females collected by H. A. Fehlmann and a male collected by H. W. Dick, all now in the University of Colorado Museum. Two were collected in Castle Park, in the floor of the Yampa Canyon, a female on July 12, 1949 and the male, July 15, 1949. It is interesting to note that the former was collected on the first ascent of the Crow's Nest, a precipice rising from the Yampa Canyon floor at Castle Park. The second female was collected July 19, 1949 at Pat's Hole (at the confluence of the Yampa and Green Rivers).

The discovery of these Great Basin Desert forms in northwestern Colorado suggests that this desert fauna is as likely to appear in the northwestern as in the southwestern part of the state. Further collections will probably indicate significant range extensions of other members of this fauna into the region being investigated.

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Current Entomological Literature

COMPILED BY R. G. SCHMIEDER

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the year 1952 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

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